Instruction Manual for Stroke Up Crank Kit for Exclusive Use with Our TAKEGAWA-Made Bore Up Kit

48.5mm Stroke

Item No. : **０１－１０－０１１２** (Stroke Up Crank Kit)
Compatible Models and Frame Nos:

Ape100	: HC07-1000001～
XR100 Motard	: HD13-1000001～
XR100R	: HE03-2100001～
CRF100F	: HE03-2400001～

・Thank you for purchasing one of our TAKEGAWA-made products. Please strictly follow the following instructions in installing and using the kit.
・Before installing the kit, please be sure to check the kit contents. Should you have any questions about the kit, please contact your local motorcycle dealer.

Read all instructions first before starting the installation

◎ We do not take any responsibility for any accident or damage whatsoever arising from the use of the kit not in conformity with the instructions in the manual.
◎ Please note that this kit is designed for exclusive use in the above-mentioned compatible models and frame numbers only and that it cannot be mounted on other models.
◎ Installation of this kit requires removal and mounting of an engine and crankcase disassembly. We strongly recommend you to work strictly following a HONDA genuine parts service manual for your vehicle with enough care. Besides, this instruction manual, as well as the HONDA service manual, is prepared for those who have acquired basic technical skill and knowledge. Therefore, we recommend those who are technically inexperienced or without right tools to ask a technically-trustworthy specialist shop to do the work.
◎ We shall be held free from any responsibility or compensation whatsoever for any glitch in the parts other than ours if the glitch takes place after the installation and use of the kit.
◎ If you make modifications to any product of the kit, we shall be held free from any guarantee of the product.
◎ You are kindly requested not to contact us about the combination of our products with other manufacturers'.
◎ Always use new bolts, nuts, dowel pins and packings. Never reuse severely worn-out or damaged ones.
◎ Do not use liquid packings, which may oppilate oil's passage; it may break the engine in the worst case.
◎ Be sure to always use premium unleaded petrol. And make sure to check what kind of gasoline is remaining in the fuel tank. Whenever regular gasoline remains in the fuel tank, always replace it with high-octane gasoline.
◎ Never use this kit on the point-ignition system motorcycle.
◎ Please be informed that what we can safely say is that the ignition system is compatible only with ours and stock ones, because no data is available with us on the compatibility with other ignition systems. Therefore, please never use other ignition systems, which may cause technical troubles.
◎ With this kit installation, a stock crankshaft will be removed, which means a loss of a centrifugal filter. So, please install an external oil filter.
◎ Install an oil cooler when necessary.
◎ Engine oil must be API SF or of a higher class, such as SAE 10W-40 / 15W-50, which are our recommendations.
◎ The upper limit of revolutions varies depending on the installed cylinder head and camshaft. Please install a revolution counter to make sure that you drive the engine at revolutions below the upper limit.
◎ Change the sprocket with the one which meets the output and specifications.
◎ This kit cannot perform on its own.
◎ This kit is only compatible with those engine parts recommended by us. So, please replace the engine parts not recommended by us with those of our recommendations.
◎ Installation of this product requires a left side crankcase cover gasket (HONDA's item No. 11394-KN4-750), which please purchase additionally.
◎ Since this kit is designed and developed for driving in closed races, do not use the kit for running on the public road.

～Features～

○ The combined use of this kit with the TAKEGAWA-made Bore-Up kit will have a remarkable effect, increasing the engine displacement to 124 cc from 115 cc.
○ Crank shaft is made light in weight with the introduction of the balance cut aimed at achieving less vibration. We have applied welding to the crank pin in addition to usual press-fit assembly in order to reduce vibrations.

Jump-Starting and Sudden Acceleration

Please note that idling, sudden acceleration, and sudden engine braking will put a heavy load on the engine. It may result in crank shaft damage and engine breakage in the worst case.

◎ Please be informed that, mainly because of improvement in performance, design changes, and cost increase, the product specifications and prices are subject to change without prior notice.
◎ This manual should be retained for future reference.

⚠ CAUTION The following show the envisioned possibility of injuries to human bodies and property damage as a result of disregarding the following cautions.

- Since this kit is designed for driving in closed races, do not use the kit for running on the public road. Always try to drive your motorcycle at a legal speed on the public road, abiding by the laws.
- Work only when the engine and the muffler are cool. Otherwise, you will burn yourself.
- Do the installation with right tools. (Otherwise, breakage of parts or injuries to yourself may take place.)
- Always use a torque wrench to screw bolts and nuts tight and securely to the specified torque. (Otherwise, these parts may get damaged or fall off, resulting in accidents.)
- As some products and frames have sharp edges or protruding portions, please work with your hands protected. (Otherwise, you will suffer injuries.)
- Before riding, always check every section for slack in parts like screws. If you find slack ones, screw them securely up to the specified torque. (Or improper torque may cause parts to come off, leading to accidents.)
- Always use new gaskets, and packings. And check those parts to be reused for wear and damage. If you find worn or damaged parts, replace them with new ones.

⚠ WARNING The following show the envisioned possibility of human death or serious injuries to human bodies as a result of disregarding the following cautions.

- Always start the engine in a well-ventilated place, and do not turn on the engine in an airtight place. (Otherwise, you will suffer from carbon monoxide poisoning.)
- When you notice something abnormal with your motorcycle while riding, immediately stop riding and park your motorcyle in a safe place to check what has gone wrong. (Otherwise, the abnormality could lead to accidents.)
- Before doing work, make sure your motorcycle is secure on level ground for safety's sake. (Otherwise, your motorcycle could overturn and injure you while you are working.)
- Check or carry out maintenance of your motorcycle correctly according to the procedures in the instruction manual or service manual. (Improper checking or maintenance could lead to accidents.)
- If you find damaged parts when checking and performing maintenance of your motorcycle, do not use these parts any longer, and replace them with new ones. (The continued use of these damaged parts as they are could lead to accidents.)
- As gasoline is highly flammable, never place it close to fire. Make sure that nothing flammable is near the gasoline. Since vaporized accumulation of gasoline is at high risk of explosion, work in a well-ventilated place. (Otherwise, it may cause a fire.)

●Cautions Before Running:

① On fuel
Whenever regular gasoline is left in the fuel tank, always replace it with high-octane gasoline.

②With this kit installation, a centrifugal filter will become unavailable. So, please install an external general-purpose oil filter (Item No.: 001-16-001).

③ Change of sprocket
◇ The installation of this kit increases the power. So the continued use of a stock sprocket will result in severe wears of parts because of too low gear, not only adversely affecting the engine life, but also possibily breaking the engine in the worst case. Therefore, please change the sprocket with the high-geared sprocket.

●Engine Parts Recommended by TAKEGAWA

※This kit is only compatible with those engine parts recommended by us. So, please replace the engine parts not recommended by us with those of our recommendations.

Recommended Parts	
Bore Up Kit	Super Head Bore Up Kit, ST-1
	Super Head Bore Up Kit, ST-2
	Super Head Bore Up Kit, ST-3
	S-Stage Bore Up Kit
Cam Chain	Die-Hard α Cam Chain, 90L
Clutch	Dry-Type Clutch
	Heavy-Duty 5-Disk Clutch Kit
Ignition System	Stock C.D.I.
	Hyper C.D.I.
	C.D.I. Magnet Kit
Oil Pump	Super Oil Pump Kit

●Others

①Oil Cooler
◇ The installation of this kit increases the heat release value of the engine, set off by the increase in power. For a long-time, high-load running, we recommend you to install an oil cooler kit which keeps the oil at appropriate temperatures and prevents such troubles as lack of oil film at high temperatures. But this doesn't apply to XR100R and CRF100F.

②Thermometer
A stick-type thermosensor can be fixed on the supplied cylinder side. In addition, the following meters can be installed as well.
- A medium LCD Tachometer & Thermometer (009-05-0141: max reading of 150℃)
- A Digital Thermometer (007-04-0011: max reading of 99℃)

●Upper Limt of Revolutions

◇The upper limt of revolutions varies depending on the installed cylinder head and camshaft. Please install a revolution counter to make sure that you drive the engine at revolutions below the upper limit.
◇Take note that idling and sudden acceleration particularly in the 1st or 2nd gear tend to exceed the upper limit of revultions. Over revolutions will result in nonsmooth revolutions of the engine, not only adversely affecting the engine life, but also possibily breaking the engine in the worst case.

～Kit Contents～

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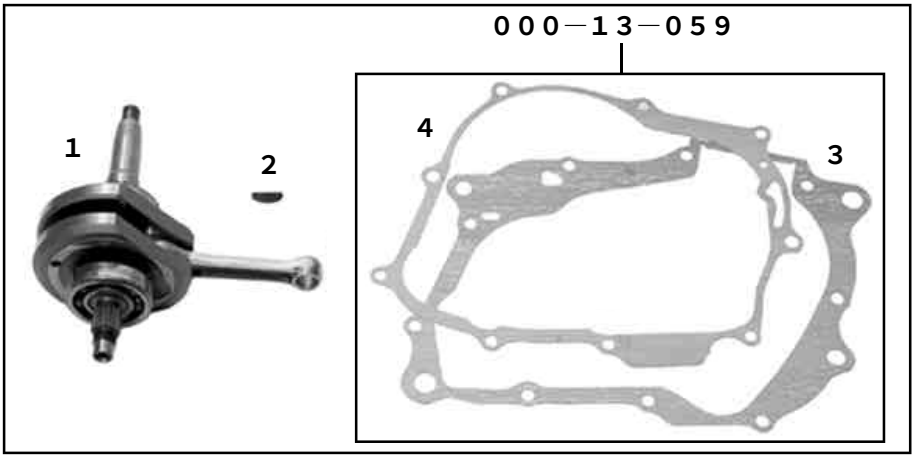
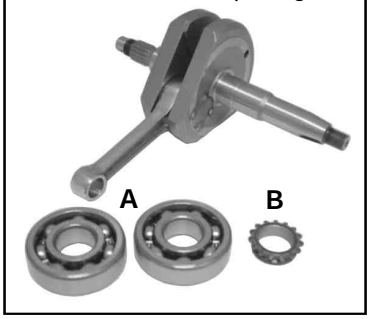


Crankshaft for Repairing



No.	Part Name	Qty	Repair Part Item No.
1	Crankshaft COMP.	1	01-10-0111
2	Woodruff Key	1	00-10-0007
3	Crankcase Gasket	1	11191-KN4-T00
4	Right Crankcase Gasket	1	11393-GCR-T00

No.	Part Name	Qty	Repair Part Item No.	Qty
A	Radial Ball Bearings	2	63/22	1
B	Timing Sprocket	1	00-10-0009	1

∴Please order repair parts by indicating the Repair Part Item No. as listed above. In some cases, we may not be able to accept your orders for a single item out of the kit components. In this case, please order the required parts in the number mentioned on the right half side of the list.

SPECIAL PARTS TAKEGAWA
3-5-16 Nishikiorihigashi Tondabayashi Osaka Japan
TEL : 81-721-25-1357 FAX : 81-721-24-5059 URL : http://www.takegawa.co.jp

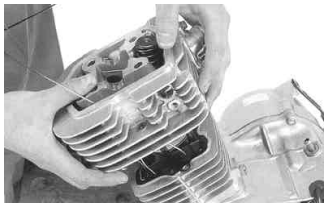
～Installation Procedures～

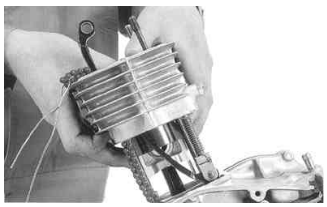
Removal

○ Referring to the service manual, demount an engine from the body.

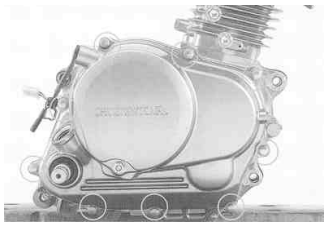
○ Uncover the generator.

○ Referring to the service manual, detach a cylinder head, cylinder, and piston.

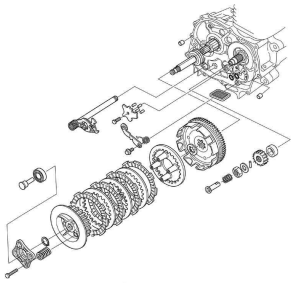




○ Referring to the service manual, detach a clutch cover.

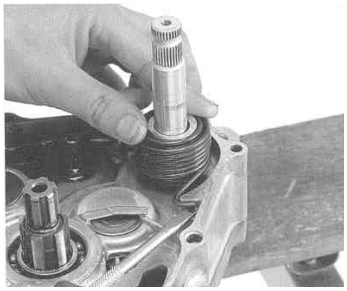


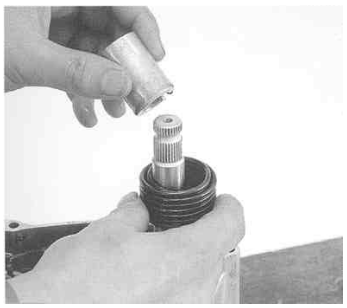
○ Referring to the service manual, detach a clutch, shift drum stopper, shift-drum-stopper plate, primary drive gear and oil pump.



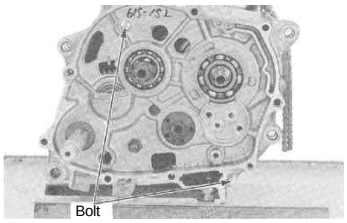
∴ When detaching a primary drive gear nut, be careful not to lose an oil-through pin.

○ Detach a kick-starter spring and spring collar.

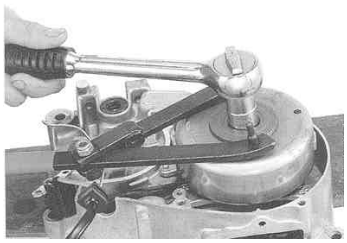




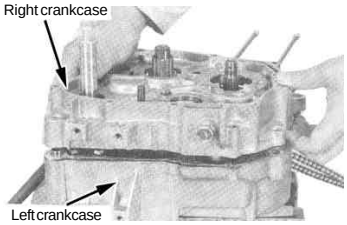
○ Unfasten a flange bolt holding a crankcase.

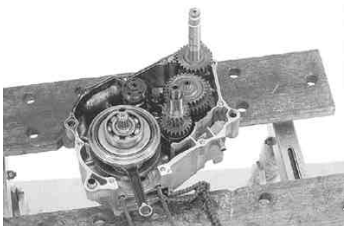


○ Remove a flywheel with a special tool.

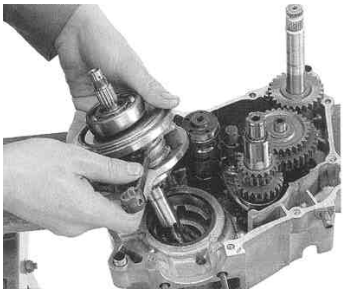


○ Tap the crankcase, with a plastic hammer, to separate it.



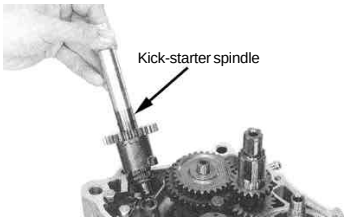


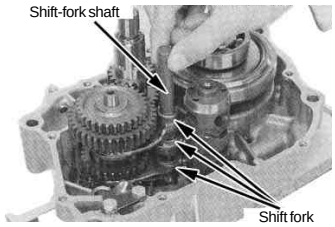
○ Slide the camchain away from sprocket to detach the crankshaft.



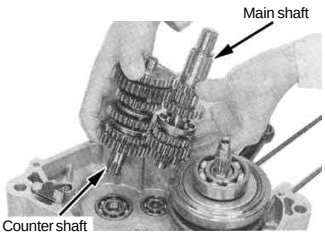
☆ In case crankcase boring is necessary, remove a transmission and other parts.

○ Remove a kick-starter spindle, shift-fork shaft and shift fork.





○ Detach a main shaft and counter shaft.



○ Detach a stud bolt, guide plate, generator and parts. Have the crankcase processed by a motorcyle specialist shop.
For details, please refer to the attached sheet.

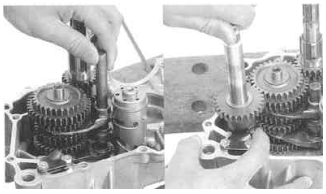
Installation:

○ Clean the bored crankcase in case the crankcase is bored.

○ Apply engine oil to the bearings in the crankcase.

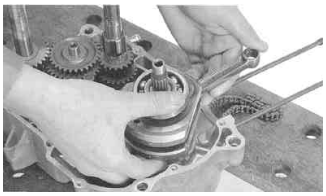
○ Reinstall those parts detached at the time of crankcase boring.

○ Install the transmission referring to the service manual or to the installation procedures for the transmission.



○ Apply engine oil to the bearings in the supplied crankshaft.

○ Attach the crankshaft to the case, passing the crankshaft through a camchain.



○ Attach two stock dowel pins to the crankcase.

○ Degrease well the mating surfaces of the crankcase, attach the provided new crankcase gasket, and apply engine oil to the moving parts in the case.

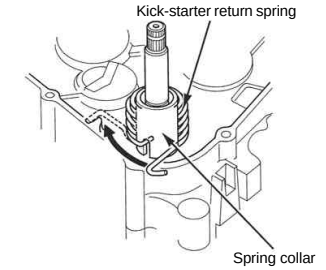
○ Set the position of the right crankcase and install it.

○Lightly apply “Aluminum Special”, a heat-resistant lubricating agent, to the threaded portions of two flange bolts, which please attach and tighten to the specified torque.

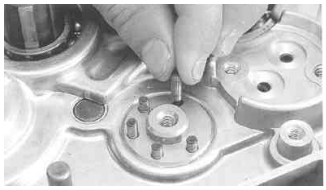
⚠Note : Be sure to tighten to the specified torque

Torque: 10 N•m (1.0 kgf•m)

○ Attach a collar and kick-starter-return spring.



○Put a pin into the shift drum.

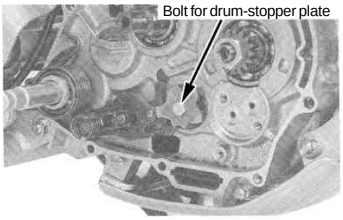


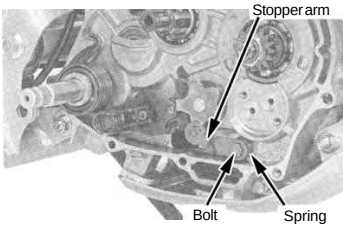
○ Install a gear-shift spindle.

○Install a shift-drum-stopper plate and shift-drum stopper, which please tighten to the specified torque.

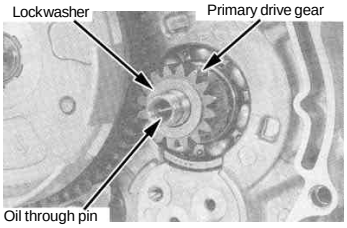
⚠Note : Be sure to tighten to the specified torque

Torque: 12 N•m (1.2 kgf•m)





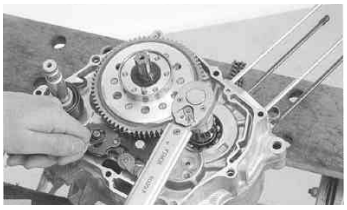
○ Attach to the crankshaft the collar, primary drive gear, lock washer and oil through pin.



○ Apply engine oil to the threaded portion and seating face of the primary drive gear nut, which please install and tighten to the specified torque.

⚠Note : Be sure to tighten to the specified torque.

Torque: 39 N•m (4.0 kgf•m)



∴ It is advisable to use a con’rod stopper or gear holder.

○ Referring to the service manual or to the installation procedures for the clutch kit, install a clutch.

○Install an oil pump.

⚠Note : Be sure to tighten to the specified torque.

Torque: 10 N•m (1.0 kgf•m)

○ Install a screen.

∴ Please clean the screen before installing it. In the worst case, the engine may burn out if the oil cannot pass through the screen because of the accumulated dirt or dust on the screen.

○ Degrease well the mating surfaces of the clutch case, and attach two dowel pins to the case.

○ Attach a supplied right crankcase gasket and then an oil through.

○Slightly apply grease to the lip of an oil seal of the clutch cover, and then attach a clutch case cover. Apply the aforesaid “Aluminum Special” a little to the threaded portion of the bolt on the outside of the case. And tighten them to the specified torque.

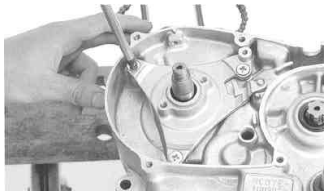
⚠Note : Be sure to tighten to the specified torque.

Torque: 10 N•m (1.0 kgf•m)

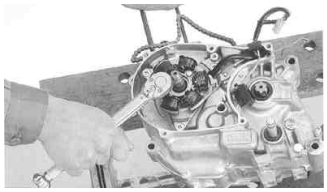
○ If a stator base is removed, slightly apply grease to the lip of the oil seal on the stator base. And apply oil to the O-ring, and attach it to the crankcase.

⚠Note : Be sure to tighten to the specified torque.

Torque: 10 N•m (1.0 kgf•m)



○ Install a stator coil.

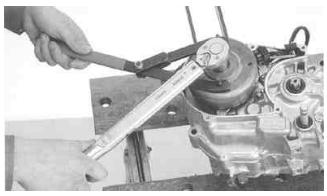


○Wire up a neutral lamp.

○ Degrease well the tapered surfaces of the crankshaft and flywheel. And attach the supplied woodruff key to the crankshaft, and then a flywheel. Tighten the flywheel nut to the specified torque.

⚠Note : Be sure to tighten to the specified torque.

Torque: 64 N•m (6.5 kgf•m)



○ Cut with a cutter the mating surfaces of the cylinder to be flat.

※ Be careful not to let any gasket chips get into the crankcase.

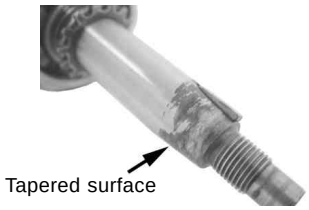
○ Referring to the installation procedures for the cylinder, install the cylinder.

Reference Value List for Crank Shaft Maintenance

Items	Stock	Service limit	Notes
Internal diameter of con'rod at small end	14.012～14.030 mm	14.05 mm	Replace
Clearance between con'rod's small end and a pin	0.012～0.036 mm	0.09 mm	Replace
Misalignment on con'rod's big end (longitudinal and transversal direction)	0～0.008 mm	0.01 mm	Replace
Side clearance	0.1～0.35 mm	0.6 mm	Replace
Free play on the journal bearings (in the direction of shaft)	————	0.1 mm	Replace
(in the direction of bearings)	————	0.05 mm	Replace
Crank shaft deflection : on the right side	0.035 mm	0.085 mm	Replace
: on the left side	0.020 mm	0.070 mm	Replace

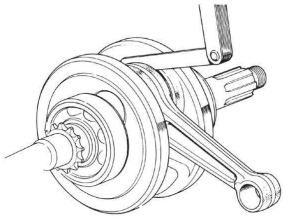
○ Inspection of Crank Shaft

• Check the crank shaft for damages on the flywheel-mounting surface.
If there is a damage, replace the flywheel and the crank shaft.

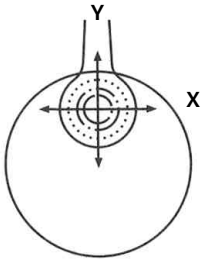


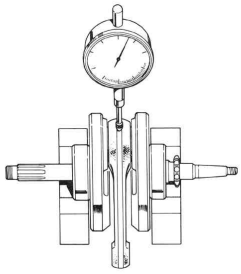
• Measure the internal diameter at the small end of the con'rod.
∴ If larger than 14.05 mm, replace it.

• Measure the clearance at the big end of the con'rod in the axial direction.
∴ If larger than 0.6 mm, replace it.

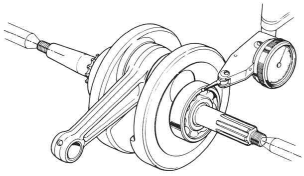


• Measure the misalignment at two points at the big end of the con'rod at right angles to the shaft as shown in the figure on the right.
∴ If larger than 0.01 mm, replace it.





• Measure the misalignment on the journal bearing of the crank shaft.
∴ Shaft direction:If larger than 0.10 mm, replace it.
Bearing direction: If larger than 0.05 mm, replace it.



• Measure the deflection of the crank shaft.
∴ On the right side : Replace the crankshaft when the deflection exceeds 0.085 mm.
On the left side : Replace the crankshaft when the deflection exceeds 0.070 mm.